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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,280	08/05/2003	Neal B. Lesh	MERL-1481	7122

7590 03/22/2006

Patent Department
Mitsubishi Electric Research Laboratories, Inc.
201 Broadway
Cambridge, MA 02139

EXAMINER

LEWIS, ALICIA M

ART UNIT	PAPER NUMBER
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2164

DATE MAILED: 03/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/634,280

Applicant(s)

LESH ET AL.

Examiner

Alicia M. Lewis

Art Unit

2164

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☒ Claim(s) 2 and 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.


SAM RIMELL
PRIMARY EXAMINER

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on May 26, 2004 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: step 115 in Figure 1. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 2 and 3 are objected to because of the following informalities: Applicants did not specify on which claim(s) claims 2 and 3 depend. Since the dependency of claims 2 and 3 cannot be determined, they are not further examined on the merits.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-7 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The language of the claim raises a question as to whether the claim is directed merely to an abstract idea that is not tied to a technological art, environment or machine which would result in practical application producing a concrete, useful, and tangible result to form the basis of statutory subject matter under 35 U.S.C. 101. The method consists solely of mathematical operations without practical application in the technological arts.

To expedite a complete examination of the instant application the claims rejected under 35 U.S.C. 101 (nonstatutory) above are furthered rejected as set forth below in anticipation of applicant amending these claims to place them within four statutory categories of invention.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 2-3 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 2 recites the limitation "the priority algorithm" in line 1 of the claim. There is insufficient antecedent basis for this limitation in the claim.

8. Claim 3 recites the limitation "the priority algorithm" in line 1 of the claim. There is insufficient antecedent basis for this limitation in the claim.

9. Claim 6 recites the limitation "the distance vector" in line 1 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' Admitted Prior Art (AAPA) in view of Beygelzimer et al. (US Patent Application Publication 2002/0161736 A1) ('Beygelzimer').

With respect to claim 1, AAPA teaches:

applying an ordering function to an instance of the combinatorial optimization problem to produce an ordering of the elements (elements 110 and 103 in Figure 1);

applying a placement function to map values to the corresponding elements of the ordering (element 120 in Figure 1).

AAPA does not teach modifying the ordering of the elements to produce a re-ordering of the elements; and repeating the modifying and the applying until all elements have been placed to obtain a solution of the combinatorial optimization problem.

Beygelzimer teaches systems and methods for using continuous optimization for ordering categorical data sets (see abstract) in which he teaches:

modifying the ordering of the elements to produce a re-ordering of the elements (paragraph 37 lines 9-18, paragraphs 64-65, paragraph 66 lines 5-7); and

repeating the modifying and the applying until all elements have been placed to obtain a solution of the combinatorial optimization problem (paragraph 34 lines 4-5, paragraph 66 lines 5-7).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified AAPA by the teaching of Beygelzimer because modifying the ordering of the elements to produce a re-ordering of the elements; and repeating the modifying and the applying until all elements have been placed to obtain a solution of the combinatorial optimization problem would enable the

formulation of the ordering problem in a fundamentally different way, which would avoid intractable combinatorial formulations (Beygelzimer, paragraph 29).

With respect to claim 6, AAPA as modified teaches in which the re-ordering uses a decision vector, and in which the distance vector has one field for each element of the order, each field determining a new order of the element in the re-ordering (Beygelzimer, paragraph 53).

12. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' Admitted Prior Art (AAPA) in view of Beygelzimer et al. (US Patent Application Publication 2002/0161736 A1) ('Beygelzimer') as applied to claims 1 and 6 above, and further in view of Angelopoulos et al., "On the Power of Priority Algorithms for Facility Location and Set Cover," APPROX, pp 26-39, 2002 ('Angelopoulos').

With respect to claim 2, AAPA as modified teaches claim 1.

AAPA as modified does not teach in which the priority algorithm is fixed.

Angelopoulos teaches priority algorithms (see abstract) in which he teaches in which the priority algorithm is fixed (page 27 lines 9-11).

It would have been obvious to a person having ordinary skill in the art to have further modified AAPA by the teaching of Angelopoulos because a priority algorithm that is fixed would enable a predetermined ordering of values, which would not change throughout execution of the algorithm (Angelopoulos, page 27 lines 9-11).

With respect to claim 3, AAPA as further modified teaches in which the priority algorithm is dynamic (Angelopoulos, page 27 lines 12-22).

13. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' Admitted Prior Art (AAPA) in view of Beygelzimer et al. (US Patent Application Publication 2002/0161736 A1) ('Beygelzimer') as applied to claims 1 and 6 above, and further in view of Krishnan et al. (US Patent Application Publication 2003/0051165 A1) ('Krishnan').

With respect to claim 4, AAPA as modified teaches claim 1.

AAPA as modified does not teach in which the re-ordering is within a predetermined distance of the ordering.

Krishnan teaches adaptive re-ordering of data packet filter rules (see abstract), in which he teaches in which the re-ordering is within a predetermined distance of the ordering (paragraphs 33-34).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have further modified AAPA by the teaching of Krishnan because in which the re-ordering is within a predetermined distance of the ordering would enable a quicker, better-performing operation (Krishnan, paragraph 8 lines 12-14).

With respect to claim 5, AAPA as further modified teaches in which the distance is a Kendall-tau distance (Krishnan, paragraph 34).

14. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' Admitted Prior Art (AAPA) in view of Beygelzimer et al. (US Patent Application Publication 2002/0161736 A1) ('Beygelzimer') as applied to claims 1 and 6 above, and further in view of Lesh et al. (US Patent Application Publication 2004/0167661 A1) ('Lesh').

With respect to claim 7, AAPA as modified teaches claim 1.

AAPA as modified does not teach in which the re-ordering is probabilistic.

Lesh teaches a method for packing rectangular strips (see abstract) in which he teaches in which the re-ordering is probabilistic (paragraph 72).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have further modified AAPA by the teaching of Krishnan because in which the re-ordering is probabilistic would enable the selection of decision vectors at each step randomly according to a probability distribution (AAPA, paragraph 43).


SAM RIMELL
PRIMARY EXAMINER

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alicia M. Lewis whose telephone number is 571-272-5599. The examiner can normally be reached on Monday - Friday, 8 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Rones can be reached on 571-272-4085. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alicia Lewis
January 30, 2006